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NAVY DOCTRINE FOR THE TWENTY-FIRST CENTURY

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of
NAVY DOCTRINE FOR THE TWENTY-FIRST CENTURY

The purpose of this paper is to establish the role of doctrine, to explore the fundamental character of naval warfare as a basis for the U.S. Navy's central doctrine, and to propose the foundations upon which it should be based. A useful Navy doctrinal statement should promote unity of purpose among various warfare specialties, and enhance the Joint Force Commander's understanding of naval operations. It should also stimulate thought and encourage the individual to seek to understand his role in the Navy. The U.S. Navy must not derive its doctrinal vision solely from the current "From the Sea" strategic vision. Instead it should derive a doctrine from the enduring characteristics of naval warfare at the tactical and operational levels which can be applied to present and future strategic orientations.

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NAVY DOCTRINE FOR THE TWENTY-FIRST CENTURY

CHAPTER I

The Debate. The debate over the value and necessity of an overarching doctrine for the U.S. Navy has continued intermittently for much of the twentieth century. The resonant effects of the demise of the former Soviet Union, domestic fiscal pressures and apparent lessons learned from the recent Gulf War have seemingly settled the issue. The Navy has articulated its vision for the future in the so called "From the Sea" white paper which emphasizes response to regional contingencies, the expeditionary role of Naval forces, and the importance of joint operations. The process of formulating this strategic vision revealed the Navy's lack of a codified central doctrine as a shortcoming, particularly with respect to joint operations.

Current Doctrine. U.S. Navy doctrine has customarily been decentralized. In his essay entitled "The Role of Doctrine in Naval Warfare" published in 1915, then Lieutenant Commander Dudley H. Knox observed that compared with army manuals, those of the Navy only discussed minor doctrine which did not "flow from anything higher up" and were detached from one another producing "confusion of service thought and practice".¹ Recently the Naval Doctrine Command has been established to initiate a more top down, centralized approach to doctrinal development.

The Challenge. This new organization faces some significant challenges. First, it must establish the value of doctrine in order to overcome the centrifugal tendencies of a service which has rejected the notion of an overall doctrinal statement for nearly a century. Next, in an environment of rapid and volatile change, it must discover that which is "higher up", the fundamental nature of naval combat that binds fragmented and continually evolving warfare areas together. Third, since the Naval Doctrine Command will encompass Navy and Marine Corps elements it will rightly devote significant energy to amphibious and joint warfare. This should not be allowed to eliminate the purely Navy elements of doctrine despite the fact that for the next several decades (only an instant in the context of the history of warfare) there appears to be no threat to our control of the seas and no potential blue water adversary.

Purpose. The purpose of this paper is to establish the role of doctrine, to explore the fundamental character of naval warfare as a basis for the U.S. Navy's central doctrine, and to propose the foundations upon which it should be based. While this subject is bound to be controversial, there are some concepts that might well appear in our doctrinal statements which will meet with almost universal agreement. Topics such as the Navy's organizational structure, the importance of leadership, quality personnel and training will be considered a given and will be omitted from discussion.

CHAPTER II

THE ROLE OF DOCTRINE FOR THE U.S. NAVY

Definition. The first challenge to the establishment of an overarching doctrine is that there does not appear to be one universally accepted definition of the term. The U.S. Army's FM 100-5 defines doctrine as: "Fundamental principles by which military forces guide their actions in support of national objectives. Doctrine is authoritative but requires judgement in application."² In Fleet Tactics Theory and Practice, Captain Wayne P. Hughes Jr. defines doctrine as: "Policies and procedures followed by forces to assist in collective action, either strategic or tactical."³ There are more definitions available, but these two adequately represent their similarities and differences. Both definitions look to doctrine as a guide to action. The major difference between the two hinges on where they look for this guidance, fundamental principles, or the narrower realm of policies and procedures. While there will be different doctrinal thinking for various different warfare specialties which will look to policies and procedures, the basic doctrine of the Navy should be distilled from the fundamentals of naval tactics and operations. What must be understood is that doctrine provides consistent guidance for action to all participants in any given plan or evolution.

In a military service where many intellects must cooperate towards a single aim, and where the stress of events forbids the actual interchange of ideas when the need is most felt, there must be a governing idea, to which every situation may be referred, and from which there may be derived a sound course of action. It is only thus, that the full driving power of an organization can make itself felt. . . . When such a stage of development is achieved, a spirit of confidence becomes diffused throughout the service that invests it with a moral power of great value.⁴

Resistance to Doctrine. What then is the cause of the historical resistance to the implementation of a comprehensive doctrine for the U.S. Navy? One argument is that no doctrinal framework could possibly cover the multitude of possible tactical situations without becoming vague or general to the point of irrelevance. In one of the few works published on the subject of naval tactics during this century, Admiral S.S. Robison objected to the use of the term "doctrine", stating that "It soon came to be applied to many other naval matters great and small and deservedly fell into disrepute"⁵. Robison preferred a list of tactical maxims or fighting instructions to doctrine. Perhaps in his day this was a valid position. In today's world of three dimensional warfare, a multitude of threats and weapons, and distinct warfare specialties to handle them, a simple list of maxims could not establish unity of purpose across the entire Navy.

Perhaps the main objection to a central doctrine reflects the natural tension between freedom of action and control. Robison suggests that proponents of naval doctrine overemphasize the need for initiative and draw inappropriate

conclusions from studies of land warfare where the soldiers are not under the direct observation of an officer in tactical command.⁶ He saw the exercise of initiative as a zero sum game, a subordinate's use of initiative unduly restricting that of the commander. Of course publication of his work predated World War II and did not anticipate the dispersion of modern tactical formations, which tends to complicate a commander's exercise of control and increase the opportunity for subordinates to exercise initiative. The human nature aspect of this issue is that while each individual in a chain of command wants to exercise control over his subordinates, he also wants to exercise his own initiative free from constraints imposed by his superiors. Since each individual commander knows that he would not issue excessive or capricious orders, but may not be equally confident about his superiors' restraint, he sees himself as a potential victim of doctrine as a threat to his exercise of initiative and to his ability to control his forces.⁷ Doctrine should be more than a mere compromise between freedom of action and control. It should enhance both by establishing a mutually accepted framework for action including a command and control structure that eliminates excessive directives and communication. Ultimately, the role of doctrine is to empower subordinates with freedom of action by virtue of the commander's confidence that they will use their understanding of doctrine and their judgement to work toward a common goal.

CHAPTER III

THE FUNDAMENTALS OF NAVY DOCTRINE

The Derivation of Navy Doctrine. Having established the role and value of doctrine the next task must be to determine how it is to be derived. This will require the Navy to define and embrace that which is "higher up", as LCDR Knox put it in 1915, those fundamental thoughts upon which our understanding of naval warfare is based.

Given the historically supporting role of naval operations and the new emphasis on the concept of the Navy as an enabling force used to project power landward from the sea, there is the danger of extrapolating a current trend in the decline of the major naval threat to the point of abandoning all of that which separates naval and land combat tactics and generating a doctrinal approach exclusively oriented toward action on the land. This would be a mistake for several reasons. First, it is premature. There is no guarantee that Russia and the Confederation of Independent States will succeed in democratic and market reforms. Even assuming the former Soviet states are successful, and maintain amicable relations with the West, other potential threats remain. The tension of the Cold War has been replaced with the uncertainty and instability of a multi-polar world. Forces such as ethno-nationalism and radical Moslem fundamentalism, which were once

subordinated to East-West rivalry are now uncontained. Smaller nations might now be more willing to pursue competitive interests, no longer fearing superpower intervention. The passing of the Soviet Union has also resulted in an international configuration where economics might predominate over international affairs and where the economic superpowers are not necessarily the military superpowers.

While all these factors make regional wars more probable, the United States military budget is likely to continue its decline. In this environment there is incentive for regional powers to fill a perceived vacuum. The probable expansion of commercial satellite information into the military sphere, and the proliferation of weapons of mass destruction and anti-ship missile technology should serve to make any navy concerned about steaming into hostile waters.

The Navy must at once acknowledge the primacy of land operations, and be doctrinally prepared to fight at sea, whether against a regional sea denial navy, or a future blue water foe. The ability to do so is the foundation of all other missions. The Navy will be unable to project power ashore if it cannot control the sea (battle space dominance). Forward presence and deterrence are meaningless without a credible fighting capability. The requirement to support forces ashore should not dictate the atrophy of the fundamental structure of naval combat, the reconstitution of

which would require a great deal of time.

Rather than accepting the "From the Sea" strategic vision and its impact on naval missions and warfare areas as the basis for doctrine, the Navy should look to essential nature of war at sea. The point of departure for analyzing the fundamental aspects of naval combat will be an acknowledgement of the similarities to land combat. Friction, uncertainty, chance, violence, moral factors, and the two-sided nature of war, all exist in naval combat. But in order to develop a firm foundation for a doctrinal approach, the differences between war on land and at sea as well as their ramifications must be understood.

The Character of Naval Combat. The first and most critical idea about naval warfare is that without terrain to blunt or channel an attack and with no equivalent of a prepared defensive position, there is no inherent tactical advantage in the defensive form of combat as is commonly recognized in land warfare.⁸ There are others of course, the relative emphasis on machines and technology making navies expensive and difficult to reconstitute, and the difficulty in locating the enemy for example, but the lack of an inherent defensive advantage is the fundamental element that drives naval tactical and strategic thought. The significance of this characteristic of naval combat emerges upon consideration of the dynamics of a fleet engagement. It is mathematically accepted that the attrition of either side is a function of

the square of the ratio of firepower.⁹ Put another way, the rate of attrition at any given time is proportional to the ratio of forces that remain. Thus, a successful first attack can gain tremendous significance. If the attack reduces the firepower of the enemy he will suffer casualties at an increasing rate, and will ultimately be annihilated while inflicting only a small level of damage on the superior force.* Of course this is an abstraction, but it demonstrates the fundamental nature of the naval engagement. Contrast this with the Clausewitzian notion of the culminating point. This stabilizing paradox - the more a force succeeds in attack the weaker it becomes - simply does not exist at the tactical level in naval combat.

Weapons technology combines with this attrition model to present some additional ramifications. The range, accuracy and lethality of modern weaponry creates the capability for one ship to destroy several times its own tonnage. Thus a single ship could sink many small ships or perhaps one very large one. This presents the dual possibilities of an inferior fleet overcoming a superior one by attacking first and adjusting the correlation of forces more to its favor, or alternately, of a decisive advantage being conferred upon a force with only a slight firepower superiority.

One way in which this abstraction differs from reality

* For a more detailed description of this attrition model see Fleet Tactics Theory and Practice, page 35.

lies in the fact that while there is no inherent advantage in defense at sea, ships do have the ability, to a varying degree, to withstand attack through armor plating, missile defense systems, and good damage control techniques. This has not reduced the value and importance of the first attack, but it has had an effect on the way it is delivered. To derive the maximum benefit, the attack must be strong enough to saturate the defensive capability of the target and inflict the maximum possible damage to reduce its firepower capability before it has an opportunity to execute its own attack. Predictably then, a characteristic of naval firepower is that it tends to be delivered in concentrated pulses of energy rather than in a continuous stream, whether by ramming in the age of oars or a cruise missile strike today. Another result has been that naval tactical actions traditionally do not feature a force kept in reserve for fear that the battle might be lost before the reserves could be committed.¹⁰ It should be noted that this essential nature of naval combat pertains both to fleet on fleet engagements and fleet versus shore positions.

Soviet Naval Doctrine. An important question is whether or not the above analysis represents anything new, or is it simply a naval version of the principles of the offensive, surprise, and concentration of power that occupy the literature of land warfare. Examination of the doctrine of the former Soviet Union is illuminating in this regard. It

includes "The Struggle for the First Salvo" as a Principle of Tactics of the Navy. This seems to extend beyond the spirit of the offensive, seizing the initiative or having a positive aim. They recognize the value of a concentrated preemptive strike and assert that ". . . a battle is won not by the side that has the most missiles, but by the side that detects its opponents first, fires first, and obtains a hit with the first salvo."¹¹ Soviet Doctrine identified the Strike as the dominant form of tactical combat action". A Strike, in the Soviet vocabulary, was characterized by nearly simultaneous concentration of firepower against a target by one or more platforms in such a way as to exploit its weaknesses.¹² Soviet ship design has been remarkably consistent with tactical doctrine in conformance to this first attack philosophy. Relative to U.S. warships those of the former Soviet Union devoted more of their displacement to weapon systems at the expense of sustainability and survivability as if to deny any role at all to defense. They have typically been capable of relatively high rates of fire, were fitted with comparatively few missiles, and were unable to reload missiles at sea, evidence of their vision of a short, rapid and decisive tactical action.¹³

A Tactical Maxim. As stated earlier defensive capabilities do exist. The U.S Navy dedicates more resources to defense relative to the former Soviets as evidenced by more reliance on mutual support through data links, a greater

number of defensive systems, and greater passive defensive design.¹⁴ This does not necessarily indicate a willingness to absorb the first attack, but rather recognizes that if the adversaries salvos can be deflected or absorbed, our own firepower will be preserved for an effective attack. Captain Hughes includes as one of his five cornerstones of maritime warfare a maxim: "Attack effectively first". The word "effectively" is included to recognize the idea of net firepower, a function of offensive firepower and survivability. He considers this the essence of successful naval combat.¹⁵ This is not treated as a principle, but as the application of principles to achieve the desired effect, and the goal to which all tactical activities must contribute. It is a maxim that while general, captures the essence of naval warfare and is applicable throughout history.

If the lack of an inherent defensive advantage and the importance of the so called first effective attack form the essence of naval combat, then their importance should be observable in strategy and tactics through history. Strategically, this has certainly been the case. The lack of inherent defensive advantage, and the attrition style of warfare that results tend to make the naval battle a very destructive proposition. Weaker navies have historically been hesitant to engage stronger ones for fear of annihilation. Aware of the expense of ships and the time required to build them they have typically fallen back to a fleet in being

strategy or perhaps to reliance on commerce raiding or sea denial operations.

Tactically, history supports the view that striving for the first effective attack transcends the offensive spirit of choosing the time and place to fight. Executing the first effective attack has been considered a tactical necessity in numerous engagements. Spruance at Midway and the British decision to attack the General Belgrano to preempt a potential cruise missile attack are two examples of this constant. Naval forces have striven to achieve the first attack through superior seamanship and maneuver in the age of sail and more recently by extending the range of their weapons and reconnaissance capabilities.

CHAPTER IV

NAVAL OPERATIONAL LEVEL WARFARE

While it is important given our emphasis on joint operations for naval, ground and Air Force commanders to have a common understanding of the rudimentary elements of naval warfare, it is perhaps more urgent for the Navy to possess an understanding of the principles of land warfare. Since man does not occupy the seas, but uses them to achieve his purposes on land, on a strategic level the Navy exists in a critical yet subordinate role to land forces. This assertion is duly recognized in the "From The Sea" white paper in its emphasis on enabling capability and joint operations, and should encourage naval officers to develop an understanding of land combat. Another reason for the Navy to develop an institutional understanding of land warfare is that as the analysis of naval combat shifts upward from a tactical level and into the macro view of operations, campaigns and strategy, it acquires a noticeably terrestrial character, and concepts that distinguish war on land from war at sea are less influential. Maritime campaigns typically revolve around a territorial objective or at the very least, rely on strategically located bases. Terms such as lines of operations, bases of operations, flanking positions, maneuver, defensive perimeters, decisive and strategic points, for

example focus the operational level of war on geometric and political relationships to shore positions. Also, consideration is given to the idea of an operational culminating point, and the use of operational reserves, two traditionally land oriented concepts at the tactical level.

Examples of the dominance of land at the operational and strategic levels are numerous. In World War II the Japanese needed to capture the Philippine Islands since they stood astride the lines of communication to their supply of natural resources to the south. The United States progressed across the Pacific on essentially two axes in a campaign designed around capturing and developing island bases from which to threaten the Japanese home islands. Even in a sea denial role such as that of the German U-Boat campaign against allied shipping during World War II, land bases are critical. In this case occupation of France and the use of French Atlantic ports enabled the U-Boats to operate much more effectively against shipping headed for Europe.¹⁶

As participants in joint operations, Naval officers will benefit from an understanding of principles espoused by our land forces, and their application to campaigns, operations and theater planning and organization. The primary Navy doctrinal publication need not provide a lesson on these issues. It should, however, address the distinctions between tactical and operational levels of naval warfare and their relationship to land warfare.

CHAPTER V

THE CONTENT OF NAVY DOCTRINE

The Foundations of Naval Warfare. Having established the value of an overarching doctrinal statement for the United States Navy, and having investigated the fundamental character of war at sea at both the tactical and operational levels, the final task is to propose the foundations of a central Navy doctrine. These should be designed to establish a common understanding of the navy's reason for being - its basic missions, the principles believed to govern the conduct of warfare at both the tactical and operational levels of war, the various processes that make up naval warfare, and the impact of versatility and technology on these processes. To be useful, this document should not only provide unity of purpose among the various warfare specialties, but should also stimulate thought and encourage the individual to seek to understand his role. The following paragraphs will attempt to fill in the detail of this framework.

Missions. The U.S. Navy has traditionally been centered on sea control and power projection, missions which have been supported by a host of other operational capabilities. While this is still essentially true, the "From The Sea" white paper presents a shift of emphasis away from the open ocean and into a joint forces littoral scenario. Reflecting this new focus,

four "operational capabilities" are specified as key ingredients for the new direction of naval forces. They are: Command, Control, and Surveillance; Battlespace Dominance; Power Projection and Force Sustainment.¹⁷ Power Projection and Command, Control and Surveillance are familiar terms and are addressed in the white paper to emphasize the fact that they must be functionally tailored to joint littoral applications. Battlespace Dominance is described as the ability to apply decisive power to the sea and land surface, subsurface and air environment to ensure our ability to project power ashore. Although not a new concept, it once again recognizes a change of emphasis, presumably meant to include protection of friendly forces ashore, and theater missile defense tasks. Similarly, Force Sustainment is not a new concept but requires renewed emphasis in the present strategic environment.

The "From The Sea" document did not propose new missions for the U.S. Navy. It does change the Navy's direction and requires adaptation of existing forces, equipment and mentality to today's strategic, political and fiscal realities. It also tends to reorganize some traditional thoughts on our missions. It could be argued that Battlespace Dominance is in a sense a combination of certain aspects of sea control and power projection. The term Battlespace Dominance repackages the efforts of the various warfare communities to emphasize the joint, land dominated vision of naval employment. The same can be said about "Force

Sustainment". This will have a telling effect on the employment of naval forces, but what of its impact on doctrine? If doctrine is to provide a common understanding of missions, among other things, we will have to agree on how to package them. I propose that the U.S. Navy's missions remain Sea Control and Power Projection. Sea control should specifically include the control of surface, subsurface and airspace, the use of joint and combined forces, the security of sea lines of communication, denial of sea access to an adversary, and the protection of forces in the littoral to ensure the transition from sea to land. Power Projection should also emphasize the use of joint and combined forces. It should encompass the ability to strike targets ashore with all means available including aircraft, missiles, Marines and special forces. It must also apply to the protection and support of those forces used to project power. Extending fleet defensive coverage over the land as in theater missile defense, as well as providing close air support, and theater search and rescue are possible examples. Through successful sea control and power projection, the requirements of the "From the Sea" strategy will be met without creating an inflexible doctrine point designed for operations near the shore.

PRINCIPLES. The value of studying principles of war has long been the subject of debate. Although most would agree that they exist, the controversy tends to focus on how to

approach their study and application. In "The Art of War at Sea", Di Giambardino asserts that "The principles of war are a legacy of ideas that it is absurd to deprecate. They must not be interpreted as rigid and precise rules; but rather as standards serving as guides. . . . Their importance is denied only by those who would like them to be absolute values. . . ."¹⁸

The Navy should incorporate Principles of war into its primary doctrine. In so doing it must be clear that the word used to describe the principle and the principle itself are not identical. The words describe concepts and the concepts are what is important. Understanding them will provide a framework for planning, and guidance to action. Simple memorization of a list of principles is a counterproductive exercise.

PROCESSES. While principles of war stimulate thought and promote common understanding, alone they cannot provide adequate guidance to navy commanders. These principles must be applied to the unique aspects of war at sea to derive a comprehensive model upon which to base Navy warfighting doctrine. At the core of this model should be the attrition concept described in chapter III. Admiral Robison's ultimate tactical maxim was simply "Attack".¹⁹ In his era the model was essentially a gunnery engagement, and tactical doctrine might well have consisted of a set of maxims or fighting instructions which were initiated upon sighting the enemy and were designed to coordinate the concentration of firepower on

a portion of his force. Robison went on to say that all fighting instructions were designed to ". . . bring about and fight a battle. There is not a word about evading an attack, or receiving an attack, or awaiting an attack. Their sole theme is how to make an attack."²⁰ But the advent of naval aircraft, submarines, cruise missiles, and weapons of mass destruction have complicated the issue. Greater weapons range has increased the value of search and reconnaissance. Concentration no longer refers to simply massing ships together but to the ability to concentrate their firepower on a target keeping in mind they may have to be physically separated as in the case of a potential nuclear attack. The demands of concentration of firepower, dispersion of forces, and effective reconnaissance exert pressure on command and control, which becomes both a capability to exploit and a potential vulnerability to protect. It would be difficult to imagine a list of maxims that would provide guidance or unity of purpose in this environment. But Admiral Robison's theme endures in the sense that all tactical functions still exist to bring about an attack. Until the advent of aviation, maneuver was the primary function that brought about a battle. Reconnaissance has replaced maneuver in this role. "The fundamental tactical position is no longer defined by the geometric relationship of the opposing formations, but by. . . the early detection of the enemy"²¹

In Fleet Tactics Theory and Practice, Hughes defines a

model of naval warfare consisting of a set of processes: Firepower/Counterforce; Scouting/Antiscouting; and Command and Control/Command and Control Countermeasures.²² He specifies, as did Robison that all these processes are employed to "Attack Effectively First". Firepower is defined as "the capacity to destroy the enemy's ability to apply force". Counterforce is "the capacity to reduce the effect of delivered firepower". This includes, for example, defensive weapon systems, armor, chaff, flares and dispersion or concentration of ships depending on the threat. Scouting consists of all means of obtaining information including reconnaissance, intelligence gathering, and surveillance. Anti-scouting is the interference with the enemy's scouting efforts. Command and control is the process by which a commander allocates and organizes his forces to conduct the first two functions with the ultimate aim of achieving the first effective attack.²³ This is an attractive framework in which to analyze naval combat. Its applicability is enduring, being relevant to the ages of sail and steam, guns and missiles. These processes will always exist but will be continually altered by technological innovation. Organizing our thoughts within this framework will contribute to the various Navy warfare communities' understanding of their own and each other's roles and permit us to adapt tactics to new technologies, new missions, and new threats. This process model should be adopted by the Navy as a doctrinal reference

for planning and executing naval tactical actions, as well as for procurement of systems and materiel.

Versatility. Versatility has been an enduring quality of navies throughout history. They have been viewed as a tool of diplomacy, a defender of commerce, and as a means of projecting force. As this trend continues the modern sailor's vocabulary will increase to include terms such as peacemaking, peacekeeping, operations other than war, and humanitarian relief. All the while potential threats to naval forces continue to proliferate and modernize. While the requirement to maintain competence in traditional warfare areas will remain force levels will decrease. To cope with this reality the Navy must renew its emphasis on versatility. We must develop a firm enough understanding of the processes of naval combat to allow us to employ them in any environment against any threat. Shrinking in absolute numbers, the Navy must not be allowed to over-specialize, and should aggressively develop the capacity of each unit and each individual to perform multiple roles and missions. The Navy should emphasize multi-mission capability not only in training but in procurement as well. The same ships that provide anti-air cover for the battle group must be able to perform shallow water ASW missions and project power in a littoral theater. The recent trend of exploitation of the innate versatility of modern aircraft must be continued. The strike fighter concept is a good one even if the Navy's choice of the F/A-18 is

controversial. Aircraft should be employed to capitalize on their potential to perform all of the processes of naval combat. Helicopters, should be designed and equipped to perform ASW, and ASUW missions as well as logistics and search and rescue, without regard to traditionally parochial views on which mission is owned by whom. Versatility is a requirement of the next century and a theme that persists throughout the "From The Sea" white paper. Our doctrine should recognize this trait as an essential characteristic of a successful navy.

Technology. Navies have traditionally relied heavily on technology. Striving to find the means to achieve the first successful attack has led to technical as well as tactical innovation, even to the extent that it has sometimes complicated strategy. Steam propulsion represented a tactical advantage in that it allowed maneuver independent of the wind, but it also made fleets strategically dependent on bases of operations because of fuel limitations. Similarly, increases in range, accuracy, lethality and complexity of firepower systems have been a constant goal of battle fleets but have increased the range and depth of spare parts requirements to the extent of adding significantly to the strategic logistics problem.²⁴ The latest trends toward what has been called information warfare means that our technological pursuits in the near future will probably emphasize scouting and anti-scouting process improvement again in the interest of

attacking effectively first. As we continue to develop strength in the scouting process we will come to rely on it making it a lucrative strategic target for a potential adversary.

Technology has been such a fundamental aspect of war at sea throughout history that the Navy must embrace it on a doctrinal level. We must stress the fact that directly behind the importance of people and leadership, is our knowledge of and ability to use our equipment. Our reliance on technical competence and material readiness superior to that of our adversaries should be emphasized as a foundation of naval doctrine that interacts with the processes of naval combat. One modern tactical maxim could be "To know tactics, know technology".²⁵ While this emphasis is aimed primarily at enhancing our ability to fight with what we have, it will hopefully enhance the unity of purpose of those who procure equipment and those who operate it.

CHAPTER VI

Conclusion

The United States Navy is currently undergoing a period of rapid change. While embracing this change, it should also make every effort to recognize the constants, the fundamental ideas that have been and will continue to be the basis for naval combat at the tactical and operational levels. From this common understanding should emerge the Foundations of central Navy doctrine that will enable the Navy to achieve unity of purpose in all of its combat, training and administrative functions. A unifying doctrine will enhance the Navy's capabilities across the broad spectrum of conflict at sea including combat against sea denial navies, power projection, joint littoral operations and operations other than war. U.S. Navy Doctrine should specify sea control and power projection as its basic missions and state that all other missions are based on these two. The remaining Foundations - principles, processes, versatility and technology should be established as a point of departure for a common understanding of the Navy. Only from this starting point can we ensure our ability to effectively contribute to future joint or independent operations in support of a changing national security strategy and an unpredictable threat environment.

NOTES

1. Dudley H. Knox, "The Role of Doctrine in Naval Warfare" U.S. Naval Institute Proceedings, March-April 1915, p.161.

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3. Wayne P. Hughes, Jr. Fleet Tactics Theory and Practice (Annapolis: Naval Institute Press, 1986) p.286

4. Knox, p.161

5. S.S. Robison and Mary Robison, A History of Naval Tactics From 1530 to 1930: The Evolution of Tactical Maxims. (Annapolis: Naval Institute Press, 1942), p.837.

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7. Hughes, p. 29

8. Herbert Rosinski, The Development of Naval Thought: Essays., B. Mitchell Simpson III, ed. (Newport, R.I.: Naval War College Press 1977) p.2.

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13. Defense Advanced Research Projects Agency, Non-Standard Forms of Naval Warfare: Tactical and Technological Requirements, HI-2351-RR, (Croton-on-Hudson, NY: 1975), p.9.

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16. Jurgen Rohwer, Decisive Battles of World War II: The German view. (Andre Deutsch Ltd.: 1965)

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